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AN EXPLORATION OF HISTORICAL METHODS FOR INFORMATION SYSTEMS RESEARCH

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Abstract

This paper reports on the use of historical methods in a recent information systems doctoral research project. The paper concentrates on the use of the methodology rather than the findings themselves. The use of historical methods is rare in information systems and this paper outlines the valuable insights it can bring for researchers. Historical methods involve the collection of both primary and secondary sources of data, which are then analysed to establish relationships between cause and effect. The aim of the research project was to study the changing nature of hard information technology based networks and soft people based networks in two regions of New Zealand over a twenty year period. Historical methods enable the researcher to examine the way in which such factors develop over time. The most well known work on historical methods in information systems was carried out by Mason, McKenney & Copeland. Their seven step approach to using historical methods is explained and applied to the research problem. This research builds on their work by introducing three new aspects: firstly historical methods are applied in a regional context; secondly a conceptual framework is used for analysis, and thirdly data collection is carried out using regional newspapers.

Keywords: Historical Methods, Regional Development, New Zealand.

1 WHAT IS THE HISTORICAL METHOD?

Historical methods consist of a collection of techniques and approaches which draw on both traditional history, and social research. The methodology was first developed in the nineteenth century by social thinkers such as Marx, Durkheim, and Weber (Neuman 2003). There has been a resurgence of interest in historical methods since the 1970s, when researchers began to recognise the limitations of methodologies such as structural functionalism and economic determinism, which take a static view of society. Increasing political conflict between Western nations meant that researchers became interested in exploring social change, and looked for a methodology that took into account historical and cultural contexts. Historical methods provide a powerful set of tools for addressing broad, big picture questions (Neuman 2003).

The first information systems researchers to use historical methods were Mason, McKenney & Copeland, who based their argument for the use of historical methods on the work of Joseph Schumpeter who saw capitalism as being characterised by ***"gales of creative destruction"*** where the economy is radically altered by innovations in products and/or processes, resulting in a fifty-five year cycle of creation, growth, and destruction, known as a Kondratieff wave. Schumpeter's theories were based in turn on the work of Nikolai Kondratieff, who argued that the possibilities of any given generation of technologies become exhausted approximately every fifty-five years (Hall 1998). As the developments in information and communications technology (ICTs) form the most powerful force of creative destruction in the last fifty-five years, and can be regarded as the fifth Kondratieff Wave, this is of direct relevance to researchers in the field of information systems.

Schumpeter thought that research should consist of four kinds of knowledge, empirical data, theories and paradigms, ethics and history. History provides a temporal and contextual meaning for each of the other three forms of knowledge. In any organization, the understanding of the present is facilitated by studying the past, and gaining an awareness of the long-term economic, social and political forces that shape events (Gorman 1997; Mason, McKenney et al. 1997a; Porra, Hirschheim et al. 2006). The benefit of using historical methods is that deep and wide insights will be gained into the area being researched. For information systems researchers' valuable insights can be gained by considering the long term cultural context in which their research is situated. For example this research explores the relationship between ICTs and regional development, and a long term perspective, which takes into consideration the development of social capital, cultural values, and the building up of networks means that historical methods is the most appropriate technique.

2 LEARNING REGIONS IN NEW ZEALAND

Historical methods were applied to research which investigated the contribution that ICTs made to development of "Learning Regions" in New Zealand. The term "Learning Region" is widely used in the field of economic geography to identify regions that have been economically successful over a period of time, and that have successfully adapted to changed circumstances (Florida 1995; Storper 1995; Cooke 1996; MacLeod 2000). Such regions are characterised by the following factors: a competitive strategy based on learning; intense intra-regional linkages; capacity for innovation; creativity in both arts and sciences; efficient

information flows; and regional norms and values that provide stability. These are all long term processes which can interact in a way that results in certain regions becoming consistently successful over time. ICTs have the potential to make an important contribution to the development of each of these factors.

The setting for this research is regional New Zealand. New Zealand is divided into 16 regions which are similar to the states in the USA, or counties in the UK. In order to investigate different aspects of the New Zealand economy, two contrasting regions were investigated, one urban region, Wellington and one rural region, Southland. Data was collected over a twenty year period, from 1985 to 2005.

In the regional setting tacit or soft knowledge is more easily transferred than in a national context. This is because social interaction and exchange of information is easier and cheaper (Oughton, Landabaso et al. 2002). These soft people- based social networks take time to develop, and are likely to have a significant influence on the use of the ICT networks that are based within a particular region. The focus of the research is on the interplay between these soft social networks and the hard technology-based ICT based networks operating within the regional setting. The central research question is:
What role do information and communication technologies play in the development of learning regions?

This next section of this paper reviews the seven step approach developed by Mason, McKenney and Copeland (1997a; Mason, McKenney et al. 1997b), and explains how their approach was adapted for this research. Historical methods are rarely used and the paper provides a good illustration of how to apply their methodology. Alongside this three new aspects were introduced: the use of historical methods in a regional context; the use of a conceptual framework for analysis of the data; and the use of historic regional newspapers for data collection.

3　THE SEVEN STEP APPROACH

Mason et al (1997a) have developed a seven-step approach for applying the historical method to MIS research, which is outlined in Table 1. Though these steps are presented in a linear fashion, when carrying out real-world research, there will always be an overlap and iteration between the steps.

This seven step model was used by Mason et al (1997a) to study the Bank of America, and by Porra et al (2006) to look at Texaco. In both cases the research was focused on a single organisation. This research uses the same seven step model, but applies it in a regional context.

3.1　Begin with focusing questions

Focusing questions were arrived at by an inductive process of searching the literature, relating to the New Zealand context, and using the questions asked in the study of Texaco (Porra, Hirschheim et al. 2006) as a guideline. A number of questions were posed, some examples of these questions are:
- What were the significant changes in the New Zealand economy between 1985 and 2005?

- How have new developments in ICT been adopted in regional New Zealand?
- What significant changes have occurred in human and social capital in regional New Zealand between 1985 and 2005?

STEP	ACTIVITIES
1) Begin with focusing questions.	The questions asked are going to be about change, as history is primarily the story of change. Inductive thinking is generally associated with the interpretive paradigm, and involves the researcher identifying categories, or patterns in data, that seem suitable candidates for further investigation.
2) Specify the domain for the enquiry.	In the studies carried out by Mason et al (1997a) and (Porra, Hirschheim et al. 2006) the primary unit of analysis is an individual organisation. The researcher needs make decisions about what will be included in the domain, and what is the appropriate time span for the study.
3) Gather evidence, using both primary and secondary sources.	Primary sources are those that came into existence during the time to which they refer, and secondary sources are those written by historians about a period in the past. Primary sources can be public documents such as annual reports, statistics and academic articles, which are organised around a timeline. Secondary sources can be slotted into this timeline and include less public information such as letters, budgets, and data collected from individual interviews.
4) Critique the evidence. Is it authentic and credible?	It is common to find that evidence is contradictory, irrelevant or incomplete. Many of the best storytellers favour accuracy less than they favour a gripping narrative. Techniques such as counting the number of times an observation was made, determining the credibility of sources, and establishing whether there are meaningful relationships between the different parts of the evidence can be used to assist with this.
5) Determine patterns using inductive reasoning.	This is one of the central steps, though one of the most difficult. The task is to explain what happened, and how and why it happened. This can be done using a number of different tools; three of the most popular are conceptual frameworks, causal chain analysis, and establishing empathy with the main participants. A conceptual framework can be used to organise facts, and to concentrate attention on the essential areas to be explained. A causal chain is a type of conceptual framework that shows the sequence of events that produced the effects, results or consequences observed. Conceptual frameworks and causal chains can be developed in advance independently of the phenomena to be explained, and used as an explanatory framework, or they can be used as ideal types around which historical data can be organised. A third approach is to try to achieve empathy with the characters in the study. This means imagining how events might have appeared to those who actually experienced them.
6) Tell the story.	This entails bringing together the results of evidence gathering, empathy, and causal chain analysis to form a narrative.
7) Write the transcript.	The historical method is part of the hermeneutic tradition in that it treats the world as a script. Every written account takes its place in the context of a network of other written accounts that attempt to explain the relationships between living generations and their predecessors.

Table 1: Seven Step Approach to Historical Methods (Mason et al, 1997)

In order to address these research questions it was decided to use the concept of the ideal type as a basis for data collection and analysis. A theoretical framework of an "ideal" learning region was built up and the two actual regions were evaluated using this framework. The framework was developed by reviewing 23 academic articles that covered the concept of the learning region in order to identify common terms and themes. Twenty two common terms were identified and these were ranked according to how often they were mentioned, and then grouped into six categories. These categories are presented as the 6-I framework, shown in Table 2. The framework groups characteristics that a learning region should possess into six categories: interconnecting; informing; innovating; interacting; infrastructure and income. The "6-I" framework was used as a basis for data collection and analysis.

INTERCONNECTING	The existence of networks between businesses, customers, suppliers, community groups and local authorities
INFORMING	Features related to learning such as the presence of embedded tacit knowledge, transfer of best practice, and presence of knowledge workers
INNOVATING	Evidence of ability to create or adopt innovations, the presence of entrepreneurs, and a competitive culture
INTERACTING	The presence of strong social capital, high levels of trust, a common regional culture, and professional networks
INFRASTRUCTURE	Hard infrastructure in terms of transport and telecommunications links, plus soft infrastructure in terms of regional norms and conventions
INCOME	Economic features such as per capita income and employment levels

Table 2: The 6-I Framework

The three example questions shown at the beginning of this section would fit into the "6-I" framework as explained below.
- What were the significant changes in the New Zealand economy between 1985 and 2005?
- How have new developments in ICT been adopted in regional New Zealand?
- What significant changes have occurred in human and social capital in regional New Zealand between 1985 and 2005?

The first question relates to economic factors and would form part of the "income" section. The second question concerns the adoption of innovative new developments in ICT and would be addressed as part of the "innovation" category. The third question focuses on human factors and would be covered in the "interacting" category.

3.2 Specify the domain for the enquiry

Neumann (2003) distinguishes between micro-level, meso-level, and macro-level theories. With the selection of the appropriate level being based on time-span, numbers of people involved, and geographical area covered. The larger the level of the theory, the more abstract the concepts it deals with. Micro-level theories would be used to explain the interactions between small numbers of individuals, whereas macro-level theories explain society-wide issues.

The intention was that the scope of this research, which is located in a regional context, should be geographically located at the meso-level, which provides a link between the micro (individual) and macro (national) levels, and therefore connects the particular with the

general. However in practice it proved difficult to separate the three levels. Adding to this difficulty is the fact that New Zealand's small population of around four million means that regions are more inter-dependent than in more densely populated countries. The integration of micro and macro level data is traditionally a feature of historical comparative research. Issues are considered at both a society wide and at an individual level (Neuman 2003). For this research the impacts of macro level national policy around issues such as local government restructuring and availability of broadband had to be considered alongside the regional meso level.

3.3 Gather evidence, using both primary and secondary sources

3.3.1 First round of data collection

Data to validate the model was collected by a range of means. During the first round of data collection in 2006, twelve in-depth semi-structured interviews were conducted with key figures involved in the adoption of ICT networks. The interview questions addressed a common set of themes including availability of infrastructure, the extent of linkages between local organisations, regional culture, commitment to learning within the region, and the adoption of innovative ideas. The interviewees worked for a range of organisations including local and regional councils, telecommunications providers, schools, and community groups.

3.3.2 Second round of data collection

The second round of data collection focused much more strongly on the regional level and also brought in the historical aspects. The aim was to build up a history of the development of ICT networks in the regions of Wellington and Southland in the twenty years between 1985 and 2005. The strategy adopted was to carry out both macro and micro level analyses of events in both regions over a 20 year period (Rooney 1996). Primary sources were used to give an overall picture of developments in each region over the twenty year period, and for three selected years 1985, 1995 and 2005; a more detailed micro analysis was carried out. For each of those dates a selection of regional publications was searched for material that was relevant to each category of the "6-I" model, for example, evidence of any innovative activity in both regions during each of those three years. The idea was to see how those factors that had been identified as being relevant to the development of learning regions were changing in each region during the period covered by this research.

In order to obtain an even amount of material for each of the three selected years, and to cope with the problem of information overload it was decided to restrict the search to three regional newspapers and one national magazine. The advantage of using newspapers is that they provided a breadth of coverage that was not available from other sources. Initial analysis of these publications showed that they did provide a wide range of articles covering business and community events within their region that were relevant to the research question. They also had the advantage of being full text. Though the intention was to use these publications to build up a picture of the recent history of each region, initial searches revealed that they also had a lot of articles that were relevant to the national context, and this information was also collected.

The material from the newspapers was complemented by national and regional reports produced by a range of organisations such as independent economic consultants, non-

governmental organisations, professional societies and voluntary groups. Abstracts of relevant articles were entered into a Microsoft Access database as shown in Figure 1, details of publication name, date, "6-I" category and whether the news item had a national or local focus where also recorded. If an article was of particular interest the full text was printed out. As the process of analysing and writing up the findings took place the initial coding was refined and some articles were reassigned to different categories or classified as irrelevant.

InterconnectingWellington1985				
RefNo	Publication	Date	Title	Full text
8	Dominion	14/01/1985	MOW gets National Computer	No
870	NBR	25/02/1985	Other potential in Parliament's Digital "printers"	Yes
144	Dominion	6/06/1985	Key to library success	No
151	Dominion	13/06/1985	Commerce students switch countries	No
217	Dominion	12/08/1985	High-tech zones aren't built in a day	Yes
224	Dominion	13/08/1985	Petone organises youth skills project	No
369	Dominion	5/12/1985	Computer link opened	No

Figure 1: Example of material in the Access database

The initial database held 3,033 items and when coding was completed this was reduced to 2,442 items. The breakdown of the number of articles for each category and region is shown in Table 3 (note that in 2005 one of the regional newspapers for Wellington was no longer in print which partly explains the drop in numbers). The numbers of articles collected for each category give a broad indication of the category's importance. Though these numbers are of no hard scientific value, counting the number of times a point is mentioned is one of the techniques used in historical research to establish trustworthiness. Counting is also a technique recommended by Miles and Huberman (1994) as a tactic for generating meaning. The same story was often reported in a number of publications, and there were often multiple articles about the same event.

	1985				1995				2005				Overall Total
	Nat	S	W	Tot	Nat	S	W	Tot	Nat	S	W	Tot	
Interconn	97	16	27	140	44	11	43	98	41	13	5	59	297
Informing	95	39	46	180	32	45	74	151	37	24	11	72	403
Innovating	123	21	38	182	104	18	34	156	112	28	32	172	510
Interacting	33	53	69	155	7	35	77	119	4	29	12	45	319
Infrastruct	53	45	58	156	8	43	56	107	58	40	23	121	384
Income	163	42	64	269	41	83	39	163	48	23	26	97	529
Total	564	216	302	1082	236	235	323	794	300	157	109	566	2442

Table 3: Newspaper statistics for 1985 to 2005

After the searches had been carried out the next step was to build up a picture of the situation in each region for each of the three years using the "6-I" model as a framework. This was done by combining the results of the searches ordered by category, sub-category and year for each of the two regions and the national situation. This data was used as a basis to describe developments in that region during 1985 to 2005. As with the first round of data collection

further refinement took place during the writing up process, duplications and overlaps were identified and articles were reassigned to different categories as appropriate. Pattern coding is used in many types of qualitative research. In historical methods the codes selected have to remain relevant throughout the period being studied, whether the technology being used is a videotex system in 1985 or broadband in 2005.

3.4 Critique the evidence. Is it authentic and credible?

Historical source material consists of primary and secondary sources. Historians select the events and people that they consider important. By doing so they don't so much recreate the past as rediscover it, and to some extent colour it with their own set of value judgements. The historical researcher's most important role is to choose reliable sources, in order to create reliable narratives about the past (Howell and Prevenier 2001). There needs to be a systematic approach to gathering data, as collecting only the most compelling evidence can result in material that is unrepresentative (Wenger and Snyder 2000). Utilising the authoritative source only is not a wise approach. Evidence should be collected from a wide range of sources, each of which will have their own strengths and weaknesses (Tosh 2000). Any source material collected should be subjected to both external and internal criticism. The authenticity of the evidence is determined by external criticism, whereas credibility is established by internal criticism (Shafer 1980). The use of external criticism involves establishing whether a document can be traced back to the purported originator, establishing whether it is consistent with known facts, and studying the form of the document (Tosh 2000). Internal criticism consists of trying to establish the author's meaning and making a judgement as to the intentions and prejudices of the writer (Tosh 2000). An overview of the two techniques is shown as Figure 2.
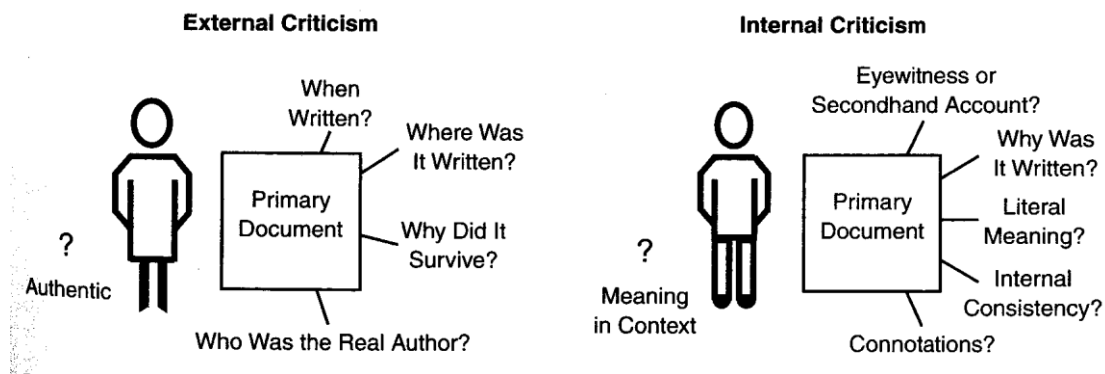

Figure 2: Internal and External Criticism (from Neuman, 2003, p.421)

3.4.1 Authenticity

Regional newspapers are an authentic primary source. The location and time of reporting are recorded, and for many of the later articles the author is also recorded. Statistics from organisations such as Statistics New Zealand and the Organisation for Economic Co-operation and Development (OECD) can also be regarded as authentic as they have official national and international approval. They also tend to have good response rates, for example Statistics New Zealand surveys generally get a greater than 80% response rate. The statistics were used to cross check and confirm assertions made in the newspaper articles. As

previously mentioned the large number of articles used increases authenticity, the articles can be counted, if an issue was significant it would be reported on a number of times, both within one newspaper and across different newspapers.

3.4.2   Credibility

The use of newspapers for historical research raises questions about whether such materials are a good source for historical truth, as reporting can be biased and inaccurate. Some steps were taken to address this, such as cross checking events across a range of publications, and using reports produced by independent bodies, but it does need to be acknowledged that newspapers can be fallible. The novelist Nicholson Baker, who based his 2008 novel about World War Two on newspaper reportage from the period, justified his decision to use such material on the grounds that the coverage of a reporter who is present as events unfold can bring bare facts to life (Baker 2008). Newspapers have "vividness" and the ability to give "a flavour of the zeitgeist" that is often lacking in other materials.

In New Zealand there are no national newspapers, each region has its own newspaper(s) and the focus is on local events. Newspapers don't have the strong political biases that might be associated with European publications such as the "*Guardian*" in England or "*Le Monde*" in France. However there is undoubtedly some bias and inaccuracy, especially in opinion pieces and editorials. The trustworthiness of qualitative research is always open to question; newspapers have an advantage over data collected by techniques such as interviews or focus groups, in that they are in the public eye. Newspapers can face libel if they publish inaccurate information therefore journalists take some steps to check their facts, and readers have a feedback mechanism in the form of the letters page.

Contradictions were found. Different articles on the same topic often contained conflicting facts and figures; claims made by politicians weren't supported by the statistical evidence. Every effort was made to try and resolve these contradictions by cross-checking data from a number of sources, but in many cases this was not possible and data was presented as found.

3.4.3   Transferability

There are two aspects to transferability. Firstly would another researcher using the "6-I" framework pick out the same set of newspaper articles as relevant? Secondly could the same research technique be transferred to another context?

It is unlikely that two different researchers would choose exactly the same articles. The inclusion of the researcher's point of view is recognised as an unavoidable part of historical research. The researcher's interpretation of the past is influenced by their current location in the present, and their view of events is fundamentally different to those who were experiencing the events at the time (Neuman 2003). The number of articles used helps to mitigate this variation to some extent. If an issue was important there would be a number of articles across different publications and different researchers would find at least some of them, so a similar set of major issues should be identified by different researchers.

The "6-1" framework and the technique of using newspapers as a data source could be transferred to any country where regional newspapers were available. It could be

meaningfully used to investigate other regions in New Zealand, or to research the role ICT plays in regional development in other countries, for example Australia.

3.5 Determine patterns using inductive reasoning

Mason et al (1997b) identify three different methods for determining patterns: conceptual frameworks; causal chain analysis and establishing empathy. With the conceptual framework and causal chain analysis generally a model or analysis would be developed before collecting the data, and then the material collected would be compared against the original model. The establishing empathy approach attempts to build an understanding of the motivations of the key historical figures in the study, and is generally carried out after data collection. Mason et al.'s research (McKenney, Copeland et al. 1995; McKenney, Mason et al. 1997; Mason, McKenney et al. 1997a; Mason, McKenney et al. 1997b; Mason 2004) was conducted at the organisational level and used the approach of establishing empathy with individuals in those organisations. This approach was also used by Hirschheim et al (2003) in explaining the history of Texaco through the eyes of its Chief Information Officers.

This research is being conducted at the regional level, and the establishing empathy approach is problematic due to the large number of individuals who contribute to regional development in widely different roles. The approach chosen for this research is the conceptual framework, which uses the concept of an ideal type to organise and interpret the data (Mason, McKenney et al. 1997a; Mason, McKenney et al. 1997b). The ideal type is presented as the "6-I" model, and the data collected is categorised using this model, within the context of both time and geographical location. The data collected was then evaluated against the definition of the "ideal" for each of the six categories, and the results for each of the two regions and the national situation were compared.

The empathy approach does produce a compelling story centred on the actions of key individuals however it can be rather subjective as the researcher has to put themselves in the decision-makers shoes. A conceptual framework is more objective, makes the research more transferable and adds rigour to the research.

3.6 Tell the story

The narrative tells the story of the economic and social development of two regions in New Zealand with a particular focus on the role of hard ICT-based and soft people-based networks in regional development. In order to assess the role that ICT was playing in the development of learning regions, the two regions were assessed against the "6-I" framework of an "ideal" learning region shown in Table 2.

The positive areas were interconnecting, informing and interacting and ICT was found to be making a contribution in all three areas. Between 1985 and 2005, organisations became much more interlinked in terms of their ICT networks, and information technology opened up access to the rest of the world. ICT was used to increase interconnection at the regional level, particularly in the dairy farming, education and community sectors. These interconnections opened up new opportunities for regional learning and innovation. Both regions were successful in setting up high quality ICT networks, most notably in the education sector in Southland and the community sector in Wellington.

However, though ICT contributed to positive developments in these areas, it could not operate in a vacuum. The existence of good social networks and strong local champions were critical to regional development. ICT could complement these social networks but was no replacement for them. Therefore there was no direct cause and effect relationship between ICT and regional economic development.

Though many examples were found of positive initiatives in both regions it was difficult for initiatives to gain momentum and achieve lasting change. At various points throughout the twenty year period, initiatives were set up around establishing clusters, developing a regional strategy, setting up high technology zones or developing partnerships between education and business, but there was no evidence that such initiatives built steadily over the years. Proposed changes at a regional level seemed to be met with infighting and local resistance, which inhibited any steady long-term development. So though the soft networks formed by clusters, joint venture and networks were present, no clear pattern of development could be observed.

In terms of infrastructure the general picture that emerged is of a clear linear progression in terms of the development of hard networks, but a more attenuated pattern in terms of soft networks where the same issues were revisited a number of times over the years. Though there was evidence of a relationship between the soft networks that existed at the regional level and the utilisation of hard ICT networks within a region, it was difficult to quantify. Rural women's groups might discuss broadband as a potential tool for overcoming rural isolation, but that in itself did not directly influence the rate of adoption of broadband in their region.

A learning region is typically characterised by high levels of innovation, which in turn lead to economic success. Though New Zealanders have a reputation for being innovative, and examples were found of successful individual companies, neither region managed to develop anything close to a regional innovation system. The issues previously discussed are part of the reason. The findings of the research show that hard and soft networks evolve differently over time and that the relationship between the two is nuanced. Though good social capital existed in both regions, especially in rural Southland, it was located in different interest groups and was not easy to bring together. This lack of co-ordination meant that the possibilities opened up by ICT infrastructure in terms of increasing innovation were not fully realised. Both regions did demonstrate a strong commitment to learning, but this learning had yet to be translated into economic success.

3.7   Write the transcript

The transcript produced needs to be placed within the context of previous work. This research builds on the work on historical methods in information systems carried out by Mason et al (Mason, McKenney et al. 1997a; Mason, McKenney et al. 1997b) by applying it at a regional rather than at an organisational level. It also provides an example of the use of a conceptual framework, the "6-I" model for data analysis, as well as using regional newspapers as a source of data.

Historical research is often incomplete and provisional , it provides a rich thick description of events, that is particular and descriptive rather than being analytical and general (Neuman

2003). A major goal of historical research is organising and giving new meaning to evidence rather than providing an authoritative account. This research fits in with this tradition, by providing a detailed examination of the use of ICT in two regions of New Zealand over a fairly limited period of time. The findings demonstrate the important role that soft social networks play in the successful utilisation of ICT networks within a regional setting. This was found to hold true whether the technology being considered was videotex, the internet or ultra fast broadband.

4   REFLECTION ON THE USE OF HISTORICAL METHODS

This research asked a broad "big picture" question and historical methods was chosen as the best approach to address it because of its ability to provide deep and wide insights. Learning regions take time to develop and the development of social capital; cultural values and the building up of networks are most meaningfully examined using a long time perspective.

One of the challenges of using historical methods is the large quantity of data that is collected, this is not only time consuming it also creates the challenge of ordering and categorising the data in order to make it meaningful. Details and individual incidents may be significant but overall findings have to be reported in an economical fashion. The technique used in this research to organise the data was the use of a conceptual framework, in this case a model of an "ideal" learning region, the "6-I" framework this was used to organise the data into categories and sub categories. Another strategy was to only collect detailed data for three key years throughout the twenty year period studied.

Both these approaches have drawbacks, one of the strengths of historical methods is the story telling approach, the use of a conceptual framework has less human interest than the empathy approach used by Mason et al (1997a; 1997b) and Hirschheim at al (2003) whose research concentrated on the people who were the significant movers and shakers in the organisations studied. This research was carried out at the regional level and though certain people did stand out as making major contributions to their region, it was not possible to single out the central characters. Therefore the story concentrates on the region itself rather than on individual citizens within the region.

Detailed data was only collected for 1985, 1995 and 2005, which meant there were ten year gaps between each collection point during which a lot of information was missed, the data collected can only be regarded as a snapshot in time. To some extent this was ameliorated by the use of other materials such as statistical reports, but it is still a limitation of the research. One of the techniques of historical research is to listen for "silences", in other words to work out what is missing from the data. The regional newspapers did not provide good coverage of the industries in their regions, and initiatives such as the formation of business clusters tended to be under reported.

Most historians would consider looking back only twenty years as barely touching the tip of the iceberg. To some extent this can be justified by the fact that ICT is a fairly recent phenomenon. However in terms of social networks it would have been useful to dig further back into the history of each region.

One of the most difficult aspects of using historical methods for an IT researcher is setting an end date, the rapid rate of new developments in the IT field means that it requires immense self discipline to put them to one side while concentrating on the past. In the case of this research there seemed to be an almost constant stream of new initiatives around the issue of

broadband, which were very difficult to ignore. Alongside this is the concern that the findings of the research will be dismissed as out-of-date and irrelevant.

However the hard work and self discipline required to use the historical method does pay off; the researcher is forced to stand back and consider an issue in its overall historical context, repeating patterns are uncovered and long term trends identified. For broad "big picture" questions historical methods is a research approach which adds considerable value.

5   CONCLUSION

This paper describes an example of how a historical method was used in information systems research. In particular, the seven stage method of Mason et al (1997a) was applied to explore the role of ICT in facilitating the development of two learning regions in New Zealand. This report also provides a detailed description of the activities used during the different stages of this particular application of historical method.

The research has taken a little used technique, historical methods, which has so far only been used to study individual organisations, and applied it in a new context, the regional meso level. In doing so it has confirmed the utility and value of the historical method. It has also demonstrated how a conceptual framework can be used for analysis, and the value of regional newspapers as a source of historical data.

The historical method has a very important role to play in advancing information systems research. The use of historical methods revealed underlying patterns showing the causes and effects that differentiated the way ICT networks were adopted in the two regions studied.

Information systems is a discipline that prides itself on being forward looking, there is a tendency for researchers to focus on the latest trends and out-of –date technology is often dismissed as irrelevant. However people change more slowly than technology and patterns of behaviour tend to repeat themselves. There are many lessons to be learned from the past, and as the information systems discipline matures historical methods will form a useful addition to the information systems researchers' toolkit.

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